EXPERIENCE OF THE URAL FEDERAL UNIVERSITY FOR IMPLEMENTATION OF INTERNATIONAL EDUCATIONAL PROGRAM IN WATER CONDITIONING AND WASTEWATER TREATMENT

Naschetnikova O.B.[1], Migalatiy E.V.[1], Tsarev N.S.[1], Zaikina I.A.[1], Gupta R.S.[2], Chauhan M.[3], Kanekar N.[3], Ghanate H.[4]

[1)]Ural Federal University, Yekaterinburg, Russia
[2)]Thakur College of Engineering and Technology, Mumbai, India
[3)]Universal College of Engineering, Thane, India
[4)]Institute of Management Entrepreneurship and Engineering Technology, Khalapur, Raigarh, India

E-mail: nstzar@mail.ru

This paper briefly reports on the first international summer school on Traditional and Innovative Technologies of Water and Wastewater Treatment, which was held June 18 – July 29, 2018, Yekaterinburg, Russia as part of the project “UrFU Summer University”

In 2018, in the Ural Federal University, within the framework of the project “UrFU Summer University” at the Institute of Construction and Architecture (ICA) for the first time, foreign students were trained under the educational program “Traditional and Innovative Technologies of Water and Wastewater Treatment».

Six students from India completed a 6-week course, during which they attended lectures, solved real technological cases in practical and laboratory classes. At the end of the course, students defended individual projects in front of a commission from ICA.

Subjects of projects performed:

- treatment of drinking water from a contaminated surface water source;
- purification of chemically polluted wastewater for the purpose of their reuse;
- conditioning and dewatering of sludge of acid pickling wastewater of a metallurgical plant.

In addition, while studying, students, together with teachers, visited a number of enterprises with water conditioning departments:

- the main facilities for drinking water treatment in Yekaterinburg (“The Western Filtration Station”);
- wastewater treatment plants for domestic wastewater of the northern part of Yekaterinburg (“The Northern Wastewater Treatment Plants”);
- water treatment facilities for the heat-power station of the Akademichesky district of Yekaterinburg;
- water treatment facilities for the production of PepsiCo soft drinks.

During excursions, students were introduced to the peculiarities of the technological processes of water and wastewater treatment. So, at the Akademicheskaya heat power station, the power engineers told the guests about the design and principles of operation of the technical water supply system and cooling the combined-cycle plant, introduced them to new technologies and modern equipment for the station’s water facilities, in

particular, the complex of treatment facilities (Fig.) In the chemical workshop, the attention of future engineers focused on phased water treatment technologies for the needs of the station. So, Indian students showed great interest in water purification using ion-exchange and membrane technologies. The use of these technologies brings a tangible economic effect: it allows reducing the areas and equipment involved in water treatment, saving power plants on their own needs.

Fig. Participants of "UrFU Summer University" at excursion to water treatment facilities at Akademicheskaya heat power station

Since 2019, ICA has scheduled annual classes for the preparation of wastewater and wastewater treatment for foreign undergraduate and graduate students in the framework of the "Summer University of Ural Federal University" project on the following topics:

- Membrane technologies for the preparation of drinking water and wastewater treatment;
- Industrial wastewater treatment and recovery technologies
- Design of industrial cooling water systems.